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EXAMINER	
FIGUEROA, MARISOL	
ART UNIT	**PAPER NUMBER**
2681	

DATE MAILED: 02/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/727,113	ZHENGDI, QIN	
	Examiner	Art Unit	
	Marisol Figueroa	2681	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 November 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13 and 15-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *5 and 6* is/are allowed.

6)☒ Claim(s) *1-4,7-13 and 15-17* is/are rejected.

7)☐ Claim(s) ___ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This Action is in response to Applicant's amendment filed on 11/25/2005. Claims 1-13, 15-17 are pending in the present application.

Response to Arguments

2. Applicant's arguments filed 11/25/2005 have been fully considered but they are not persuasive.

3. In response to applicant's argument that the Soliman reference cannot be combinable with the Kuwahara reference, because the method of Soliman requires knowledge of the location of a terminal as a prerequisite, while the method of Kuwahara is aimed at finding such location information (page 9, lines 4-13); the Examiner respectfully disagrees, Soliman teaches a method for sizing a search window for pilots, which is determined based upon a geographic distance between the phone and the targeted pilots (e.g. network element), Soliman teaches that the location of the mobile terminal must be known for knowing the geometric distance. However, Soliman reference was combined with Kuwahara for the teaching of using the distance between a mobile phone and a network element to size a search window, and not which method is utilized for determining the distance (e.g. mobile telephone's location). Furthermore, one of ordinary skill in the art may recognize that there is other techniques besides knowing the mobile phone's location to determine a distance from the mobile phone to a network element such as the measurement of the signal strength between the signals exchanged between a base station and a mobile phone which would not conflict with the Kuwahara's method.

4. Applicant's arguments with respect to amendments incorporated have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. **Claims 1, 2, 7, 8, 9, 11, 13, 15, 16, and 17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuwahara (EP 1,164,383 A2) in views of Soliman (US 2003/0114172 A1) and Yamamoto et al. (US 6,549,545 B1).

Regarding claim 1, Kuwahara discloses a method for estimating a delay of a signal (col.2, lines 56 – col.3, lines 1-4) received at a mobile station (MS) from a specific network element (BS.sub.1, BS.sub.2) of a network for determining the location of said mobile station (MS), said method comprising: estimating said delay within a search window (col.3, lines 4-8), which search window is determined based on location information available for said specific network element (BS_1, BS_2) (abstract, lines 1-9; col.3, lines 8-11, 16-24; col.6, lines 40-54; the window is setter changes the range according to at least one information item within the remote received signals {i.e. position of the base station}).

Kuwahara fails to disclose wherein the search window is also determined based on a known distance of said mobile station (MS) to at least one other network element (BS_0, BS_1). Soliman teaches a method that uses the location of a mobile and also on the location of the mobile and another component within a network for determining a search window for searching pilot signals (abstract, lines 1-6; p.0054, lines 1-4). Therefore, it would have been obvious to one having ordinary

skill in the art at the time of the invention to determine a search window in a known location of a mobile station within a network, e.g. distance from a BS, as suggested by Soliman, in order to minimize the wasted searcher resources because a more efficient search may be conducted (p.0038, lines 1-5).

However, the combination of Kuwahara and Soliman fails to disclose wherein the search window increases an acquisition probability for said signal. Yamamoto teaches a pilot signal detection method that generates a search window having a predetermined time width to detect pilots within the search window (abstract), and thus by setting a search window the probability of failure to detect signals is minimized (col.6, lines 11-27). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to recognize that by determining a search window the probability of acquisition of the signal is increased as taught by Yamamoto, because the search window fit the actual conditions of network and is likelihood that the signal will fall within it.

Regarding claim 2, the combination of Kuwahara, Soliman, and Yamamoto disclose a method according to claim 1, Kuwahara further discloses wherein said at least one other network element comprises a serving network element (BS_0) serving a server cell (20) in which said mobile station (MS) is currently located (col.3, lines 54- col.4, line 1). Kuwahara fails to disclose wherein the maximum distance of a boarder of said server cell (20) to said serving network element (BS_0) defines the known distance of said mobile station (MS) to said serving network element (BS_0). Soliman teaches that window sizes are mostly determined by the size of the coverage area of a given cell, the window are sized to correspond to a mobile located at the greatest distance, e.g. boarder of the serving cell, from the base station but within the cell (p.0029, lines 7-16). Therefore, it would have been obvious to one having ordinary skill in the art at time of the invention to define the known distance as the maximum distance of a boarder of said server cell to said server network as suggested

by Soliman, in order to size a search window to correspond to the worst case scenarios, regardless of the location of the mobile in the serving cell (p.0029, lines 12-16).

Regarding claim 7, the combination of Kuwahara, Soliman, and Yamamoto disclose a method according to claim 1, Kuwahara further discloses wherein a respective search window is determined for at least two specific network elements (BS_1, BS_2) in the order of their distance to said mobile station (MS), beginning with the network element (BS_1) which is the closest to said mobile station (MS) (col.6, lines 22-39; col.8, lines 40-53; the window is set to detect at least three delay profiles, i.e. three base stations, for determining the position of the mobile terminals; the window setter with information stored in the memory may select a primary base station having the highest received power, e.g. closest to mobile station, and the bases stations surrounding the primary base station).

Regarding claim 8, the combination of Kuwahara, Soliman, and Yamamoto disclose a method according to claim 1, Kuwahara further discloses wherein a search window is determined for at least two specific network elements in the order of the signal strength at said mobile station of signals transmitted by said network elements, beginning with the network element providing the strongest signal (col.8, lines 40-47).

Regarding claim 9, the combination of Kuwahara, Soliman, and Yamamoto disclose a method according to claim 1, Soliman further teaches wherein the covering range of said specific network element (BS_1, BS_2) is take into account in addition for limiting said search window (p.0029, lines 7-16). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention, to take into account the covering range of said specific network element as suggested by Soliman, in order to size a window corresponding to a mobile located at the greatest

distance from the base station but within the cell.

Regarding claim 11, Kuwahara discloses a mobile station (MS) (col.6, lines 55-col.7, lines 1-4) comprising means for receiving signals (Fig. 7, signal receiver 20) from a plurality of network elements (BS_0, BS_1, BS_2) of a network for determining the location of said mobile station (MS), means for determining a search window (Fig. 7, window setter 22) and means for determining a delay of received signals using a respectively determined search window (Fig.7, delay profile calculator). Conforming with the combination of Kuwahara, Soliman, and Yamamoto the mobile station determines a search window according to the method of claim 1, see remarks about claim 1 above.

Regarding claim 13, Kuwahara discloses a network element (BS_0) for a network comprising means for transmitting signals for determining the location of a mobile station (MS) to said mobile station (MS) (col.3, lines 54 - col.4, line 1; the system include a center or server which stores information item and sends it to the mobile terminal), means for determining a search window for at least one further network element (BS_1, BS_2) (col.10, lines 17-21; the server may designate a window size for delay profile calculation therefore it is inherent to have the means for determining a search window) and means for transmitting information on said determined search window to said mobile station (MS) (col.6, lines 40-54; the information item is transmitted through the base stations and may include the size of at least one window needed for calculating delay profiles of that base station and other base stations). Conforming with the combination of Kuwahara, Soliman, and Yamamoto the system determines a search window according to the method of claim 1.

Regarding claim 15, Kuwahara discloses a communication system comprising: at least two network elements (BS_0, BS_1) for transmitting signals for determining the location of a mobile station

(MS) (col.6, lines 22-28); at least one mobile station (MS) with means for determining a delay of received signals based on a search window (col.6, lines 28-39); and means for determining a search window (col.6, lines 55 – col.7, lines 1-12). Conforming with the combination of Kuwahara, Soliman, and Yamamoto the mobile station determines a search window according to the method of claim 1; see remarks about claim 1 above.

Regarding claim 16, the combination of Kuwahara, Soliman, and Yamamoto disclose a communication system according to claim 15, Kuwahara further discloses wherein said means for determining a search window are comprised in at least one of said at least two network elements (BS_0, BS_1) (col.10, lines 17-21; the window size can be designated by the base station, therefore it is inherent that the base station has means to determine a search window).

Regarding claim 17, the combination of Kuwahara, Soliman, and Yamamoto disclose a communication system according to claim 15, Kuwahara further discloses wherein said means for determining a search window are comprised in said at least one mobile station (MS) (col.6, lines 55 - col.7, lines 1-12; window setter 22).

7. **Claim 3 and 4** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuwahara in views of Soliman and Yamamoto, and further in view of Uhlik (US 6,760,599 B1).

Regarding claim 3, the combination of Kuwahara, Soliman, and Yamamoto disclose a method according to claim 1, Kuwahara discloses wherein said at least one other network element comprises a serving network element (BS_0) serving a server cell in which said mobile station (MS) is currently located (col.3, lines 54- col.4, line 1). However, the combination of Kuwahara, Soliman, and Yamamoto fails to disclose wherein said known distance is a distance (D_0) of said mobile station (MS) to said serving network element (BS_0) which was determined based on delay measurements on signals from said serving network element (BS_0). Uhlik discloses a method and apparatus for

selecting a Base Station and teaches that a received signal delay at a user terminal, e.g. mobile station, is a measurement of the relative distance from each Base Station to the user equipment, and this distance is used to make a Base Station selection (col.13, lines 34-48). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to determine a known distance from a mobile station to a serving network element, i.e. base station, based on delay measurements as suggested by Uhlik, because it is well known that a signal delay is a measurement of the relative distance from a base station to a mobile station and a criterion used for selecting a base station.

Regarding claim 4, the combination of Kuwahara, Soliman, and Yamamoto disclose a method according to claim 1, Kuwahara further discloses wherein said at least one other network element comprises at least two network elements (BS_0, BS_1) (col.6, lines 25-28; the system includes a terminal and at least three base stations). However the combination of Kuwahara, Soliman, and Yamamoto fails to teach wherein the respective distance from the mobile station to the other network elements was already determined based on delay measurements on signals from said at least two network elements (BS_0, BS_1). However Kuwahara and Soliman fails to disclose wherein said known distance is a distance (D_0) of said mobile station (MS) to said serving network element (BS_0) which was determined based on delay measurements on signals from said serving network element (BS_0). Uhlik discloses a method and apparatus for selecting a Base Station and teaches that a received signal delay at a user terminal, e.g. mobile station, is a measurement of the relative distance from each Base Station to the user equipment, and this distance is used to make a Base Station selection (col.13, lines 34-48). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to determine a known distance from a mobile station to a serving network element, i.e. base station, based on delay measurements as suggested by Uhlik, because it is

well known that a signal delay is a measurement of the relative distance from a base station to a mobile station and a criterion used for selecting a base station.

8. **Claim 10** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kuwahara in views of Soliman, and Yamamoto and further in view of Bayley (US 6,775,252 B1).

Regarding claim 10, the combination of Kuwahara, Soliman, and Yamamoto disclose a method according to claim 1, but fails to disclose further comprising the step of determining a threshold value based on the size of a determined search window, which threshold value defines the minimum signal strength of signals received at said mobile station for which a delay is estimated. Bayley teaches a search window size that is adjusted in response to a measured signal strength of a first base station signal and used by the remote unit to search other base stations (abstract, lines 8-12; col.15, lines 37 – col.16, lines 1-28), the strength of a signal indicates that a remote unit is geographically nearer or farther from the base station (col.7, lines 17-23). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to use the signal strength received from a base station as a minimum threshold value to determine a search window as suggested by Bayley, in order to determine a window size to search for the closest base stations to the mobile terminal for calculating the position of the terminal.

9. **Claim 12** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kuwahara in views of Chen et al. (US 6,748,224 B1) and Yamamoto et al. (US 6,549,545 B1).

Regarding claim 12, Kuwahara discloses a mobile station (MS) comprising means for receiving signals from a plurality of network elements (BS_0, BS_1, BS_2) of a network for determining the location of said mobile station (MS) (col.6, lines 55 - col.7, lines 1-4; col.6, lines 26-33; signal receiver 20) and an indication of a search window for each of said network elements (BS_0, BS_1, BS_2) (col.6, lines 55 – col.7, lines 1-12; window setter 22) and means for determining a delay of received

signals using a respective search window (col.6, lines 55 – col.7, lines 1-4; col.7, lines 13-16; delay profile calculator 21).

However, Kuwahara fails to disclose wherein there is a separate search window for each of said network elements. Chen teaches a mobile station that receives pilot channel signal within search windows, and is expected to receive one pilot channel signal within each search window (abstract, lines 1-6; col.1, lines 41-52). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to include a separate window for each of the said network elements (e.g. pilot signals) as suggested by Chen, in order to conduct a more effective search.

In addition, the combination of Kuwahara and Chen fails to disclose fails to disclose wherein the search window increases an acquisition probability for said signal. Yamamoto teaches a pilot signal detection method that generates a search window having a predetermined time width to detect pilots within the search window (abstract), and thus by setting a search window the probability of failure to detect signals is minimized (col.6, lines 11-27). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to recognize that by determining a search window the probability of acquisition of the signal is increased as taught by Yamamoto, because the search window fit the actual conditions of network and is likelihood that the signal will fall within it.

Allowable Subject Matter

10. Claims 5-6 are allowed.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

12. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marisol Figueroa whose telephone number is (571) 272-7840. The examiner can normally be reached on Monday Thru Friday 8:30 a.m. - 5:00 p.m..

14. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Feild can be reached on (571) 272-4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

15. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Marisol Figueroa
Art Unit 2681

JOSEPH FEILD
SUPERVISORY PATENT EXAMINER